# Immature Citrus Fruit

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Gentlemen:

This subject probably has been discussed more frequently by the grower, shipper and consumer of citrus fruit during the past twenty years than any other subject, affecting the production and marketing of citrus fruit.

It became the subject of discussion by the citrus grower, the agricultural press, and trade journal before the great freezes of Florida and California, at which time the crops of citrus fruit in each state had become of large size—some 5,000,000 boxes in Florida and some 8,000,000 boxes in California. For some years after these freezes the crop being small, far less than the demand, there was little, if any, immature citrus fruit sent to market, hence the quality of the fruit was seldom questioned.

However, when the crop again reached 5,000,000 boxes in Florida, with a proportionate increase in California, the problem of marketing and distribution became acute.

The natural desire to get the fruit into the market in advance of a possible freeze, by which the fruit at least would be made unfit for market, with the possibility of serious damage to the groves, and shortening the crop for several years to come; the temptation to ship the fruit as early as the market would accept them irrespective of quality was great, hence the shipment of immature fruit became general, particularly by shippers who had purchased crops on the trees—often with a clause in the contract requiring the purchaser to remove the entire crop from the trees at a fixed date, generally by January 1; sometimes earlier.

The flooding of the market with this fruit, largely immature and undesirable, early in the season necessarily had the effect of destroying the reputation for excellence, formerly enjoyed by the Florida orange.

In order to deceive the consumer as to ripeness and desirability, it became a common practice to "sweat" green, or immature oranges, thus simulating ripeness or maturity. It was soon discovered that green fruit shipped in an unventilated car "Released, Vents Closed and Plugs In," thus affording "a warm moist atmosphere" would arrive at destination, some six to ten days later, yellow and apparently mature.

This abuse became so common when the Florida and California crops reached large proportions, as to demand some action by our national pure food officials, who, after investigation, declared that:

> "There is evidence to show that the consumption of such immature oranges, especially by children, is apt to be attended by serious disturbances of the digestive system."

This fact, however, was generally accepted prior to the issuance of F. I. D. No. 133, April 6, 1911, by the national pure food authorities.

This ruling by the national authorities was quickly followed by the State of Florida; on June 5, 1911, the Florida "Immature Citrus Fruit Act" became a law; in response to a practically universal demand by the orange growers of the State, and that of many shippers interested in maintaining the quality, reputation and market value of Florida oranges, and was bitterly opposed, I am pleased to say, only by a few notorious "Green Fruiters" and speculators, who had little or no interest in the general welfare of the industry. Its constitutionality was questioned by those interested in the shipment of "Immature Citrus Fruit," carried to the Florida Supreme Court, and the law sustained, as reported in the case of Sligh

vs. Kirkwood, Sheriff, reported February 7, 1913. 65 Florida, page 123. This judgment was affirmed on appeal to the U. S. Supreme Court, April, 1914.

It will be noted that in F. I. D. No. 133, and in the Florida "Immature Citrus Fruit Law of 1911" no standard was fixed for determining the maturity of oranges. However, in both cases, "Immature Oranges" were declared unwholesome and unfit for consumption.

Necessarily, the question—"When is an orange mature and wholesome?" became immediately one of great public interest in the orange producing states. It is well known that immature citrus fruit, after removal from the tree, though it may be artificially colored by "holding in a warm, moist atmosphere for a short period of time," or shipment in an unventilated car, does not, as in the case of deciduous fruits, ripen; that such immature oranges "do not change in sugar or acid content after removal from the tree" and are not prone to decay, rather to desicate or "dry up."

It can be readily perceived that some simple method, easily and quickly applied, one that could be applied by any one—grower, shipper or receiver—one that would positively determine the degree of ripeness, irrespective of color, became necessary.

Hence, a standard, fair to all parties—the grower, the shipper, the receiver, and particularly to the consumer—a reliable and accurate standard, quickly applied by any intelligent man or woman, not requiring great skill, technical training, or expert knowledge to apply, was demanded, a legal standard fixed by authority, for the guidance not only of the Inspector, but also for the grower and shipper.

This problem of devising such a standard was delegated by the Agricultural Department of Florida to a commission of eminent scientists, trained horticulturists,

specialists in orange growing and marketing, chemists, and business men.

This commission was appointed by the Commissioner of Agriculture of Florida in June, 1912, and met July 6, 1912, at the Florida Agricultural Experiment Station, and assigned to its various members different phases of the problem submitted.

After several sessions and much correspondence, this Commission prepared a report of their conclusions and presented the same to a largely attended convention of Florida orange growers, convened by the authority of the Florida Agricultural Department, at the State University at Gainesville, August 15, 1912.

This convention unanimously adopted the standard for oranges recommended by the Commission as follows:

> "If this chemical analysis shows the percentage by weight of the total sugar, as invert sugar, to be seven times, or more, than the weight of the total acid, as citric acid, the fruit shall be deemed mature."

This standard now generally known as the "Florida Standard," I am pleased to say has been adopted by the National Bureau of Chemistry and by the National Association of Food, Drug and Dairy Officials, slightly modified as to terms, in order that the "test" or "analysis" can be readily and quickly applied in the field or in the laboratory. The standard now adopted by the National Food and Drug authorities, and by many of the Food Officials and Health Officers of the Nation, is that:

> "All mature oranges shall contain not less than eight parts of total solids to one part of total acid, calculated as citric acid, without water of crystalization; and that
>
> "All mature grapefruit shall contain not less than seven parts of total solids to one part of

acid, calculated as citric acid, without water of crystalization."

It will be noted that one part crystalized citric acid to seven parts of total sugar, as invert, is practically identical with the standard now universally adopted. It can readily be applied by any one, not color-blind, with a few inexpensive instruments and reagents, thus obtaining the information necessary, without the tedious and expensive sugar determination, requiring a chemical laboratory and a trained chemist.

It will be readily perceived that total solids include acids, hence seven parts sugar is practically identical to eight parts total solids.

Much time, labor and study has been devoted to this problem by the U. S. Bureau of Chemistry in California and in Florida, also by the Laboratories of the Universities and Experiment Stations and State Laboratories of these States, as well as by several reputable commercial laboratories in these, and other States, all of which agree that the standard fixed by the Florida Commission is equitable and fair alike to the grower and the shipper, and the consumer.

Since the unanimous adoption of the standard by the National Association of Dairy, Food and Drug Officials, at Berkeley, California, August 2-5, 1915; the Health and Food Officials, Chambers of Commerce and Boards of Trade of many states, particularly those in which large distributing points are situated—New York, Chicago, Cincinnati, St. Louis, Denver and others—have adopted the standard and decline to accept delivery of fruit which does not comply with the National standard; and have destroyed large quantities of citrus fruit that has failed to pass the standard required, not only in car lots and cargoes, but have followed and attached the fruit in the possession of the retail dealer.

Two cargoes of Porto Rican grapefruit (windfalls from the recent storm) were condemned and destroyed by the Health Officers of New York, recently. This has resulted in a notice by the New York Chamber of Commerce to the Porto Rican and other foreign shippers, that hereafter delivery would not be accepted of fruit that failed to pass the National and state standards. Citrus fruit, therefore, can not be shipped from these localities until certified as mature by an official chemist at the shipping point.

The time is rapidly approaching when all contracts for delivery of citrus fruit will be conditional upon its "passing the test" of maturity on arrival at destination. Receivers, commission and auction houses, brokers and dealers, wholesale and retail, will not assume the risk of the loss of the fruit by condemnation. The work of inspection has been greatly facilitated and improved.

The fact that a shipper can not now ship "Released, Vents Closed and Plugs In" without calling attention to his evident desire to "sweat" the fruit in transit; nor prevent State or National Inspectors from obtaining this information from the railroad agents, has had a wonderful retarding effect on the "Green Fruiter," a very few of whom still try to operate and occasionally get off a car from some lonely siding, packed and shipped at night, and, I am credibly informed, not billed as citrus fruit.

The act of 1910, amending the Interstate Commerce Act, provides as follows:

U. S. ACTS OF 1910.

Chapter 309—To amend An Act to regulate commerce. (The Interstate Commerce Law).

Section 10. Any person, corporation, or company, or any agent or officer thereof, who shall deliver property for transportation to any common carrier * * * or for whom, as con-

signor or consignee, any such carrier shall transport property, who shall knowingly and willfully, directly or indirectly, himself or by employee, agent, officer, or otherwise, by false billing, false classification, false weighing, false representation of the contents of the package, or the substance of the property * * * whether with or without the consent or connivance of the carrier, its agent, or officer * * * shall be deemed guilty of fraud, which is hereby declared to be a misdemeanor, and shall, upon conviction thereof, be subject, for each offence, to a fine not exceeding five thousand dollars or imprisonment in the penitentiary for a term of not exceeding two years, or both, in the discretion of the court:

Section 12. Provided, That nothing in this act shall be construed to prevent the giving of such information in response to any legal process issued under the authority of any state or Federal Court, or to any officer or agent of the Government of the United States, or of any State or Territory, in the exercise of his powers, or to any officer or other duly authorized person seeking such information for the prosecution of persons charged with or suspected of crime; * * * Any person * * * violating any of the provisions * * * of this section, shall be guilty of a misdemeanor, and for each offense, on conviction, shall pay to the United States a penalty of not more than one thousand dollars.

Those two amendments to the Interstate Commerce Act have had a wonderful deterent effect upon the shipment of unlawful goods by means of false statements as to kind or class of material shipped and also afford officials, State and National, means to promptly ascer-

tain all facts as to the point, and date of shipment, name of consignor and consignee, car initial, number and routing, thus affording an opportunity to fix the responsibility for the shipment of all unlawful goods, not only immature citrus fruit but numerous others. Citrus fruit is by no means the only class of fruit or vegetable and other farm products now demanding laws and regulations to prevent their shipment in an immature condition—notably the canteloupe and celery growers, shippers and consumers are now demanding laws and regulations to prevent this deception and abuse. Particularly are brokers and consignees declining to accept delivery and pay for goods that do not conform to the National and State standards fixed by law.

I am pleased to say that most of the larger shippers of the State, handling most of the citrus crop, are now in full accord with the National and State authorities, and are upholding the law and aiding in its enforcement. The fertilizer, Feed Stuff and Food and Drug Laws, which at first met with the active opposition of the manufacturers and dealers, are now recognized by the legitimate manufacturer and dealer in honest goods as their best protection against the dishonest competition of the manufacturer or dealer in inferior or adulterated goods.

It will be noted that previous to the season of 1914-15, when the law had been declared constitutional by the Supreme Courts of the State and Nation, and the adoption of the Florida Standard by the National authorities; but little was accomplished in preventing the shipment of immature fruit by State officers. The shipment of citrus fruit being practically exclusively interstate, the State, without the co-operation of the National authorities, was seriously handicapped, hence the shipment of 900 cars of grapefruit prior to November 5, 1913—thus flooding the markets with inferior fruit to the disgust of the consumer and demorilization of the market, which did not

recover until very late in the season—to the great financial loss of the grower and legitimate shipper.

However, during the season of 1914-15, owing to the hearty co-operation of the National authorities but 90 cars of grapefruit had left the State when the season closed, November 5, while there was but little complaint of immature oranges. These facts are well known to the grower and shipper, hence the general approval of the law and demand for its enforcement by all except a few notorious "Green Fruiters," who still persist in the efforts to evade the law by packing and shipping at night from lonely sidings, and, as alledged, by false billings.

A number of these cars have been attached as immature, the necessary evidence obtained of their being shipped "Released, Vents Closed and Plugs In," and full information forwarded to the National authorities and to the consignee. It is believed that this practice will cease when found unprofitable and liable to end in conviction and punishment.

With the active co-operation, now assured, of the National authorities, and the various states that have adopted the Florida standard, and the fact that numerous Boards of Trade, Chambers of Commerce and other trade organizations are now refusing to accept delivery of citrus fruit, foreign or domestic, that does not meet the national standard, there is reason to believe that the effort of the honest grower and shipper of citrus fruit to prevent the violation of the laws of the State and Nation will be accomplished.

R. E. ROSE.